Understanding Interactive Technology in Organizational Settings

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INTRODUCTION

The technology we use in everyday life, both at home and at work has become increasingly complex and, at the same time, offers more diverse interaction opportunities. It has been a long time since we stopped using technology only as a tool to make our tasks easier. How many of us can't go to bed before checking their preferred social networking website one last time? Is it because we need to solve a task? Usually no! It is because of how it makes us feel: connected, happy, joyful, inspired, and so on. All these have become important criteria defining our reactions to technology and research indicates they will become even more important for the overall success of any technological product (Nielsen, 2008). But how much does this apply to interactive technology at work?

One straightforward answer might be "not too much" as work is primarily about fulfilling our tasks. There are several arguments for which this answer is no longer appropriate.

First, the boundaries between technologies we use at work and at home are becoming blurred (Rebelo, Noriega, Duarte, & Soares, 2012) with many consumer technological products and interactive technologies penetrating organizations. Moreover, organizations adopt these new technologies hoping they will facilitate radical changes in the way things are done (Nicholls, 2010). The way technology can support these changes is related more to its ability to facilitate an interaction that stimulates intrinsic motivation, curiosity, mastery and positive feelings and less to its specific functionalities.

This leads to the second argument, that positive emotions and intrinsic motivation that interaction might foster are associated with a series of work related individual and organizational outcomes. A review by Brief and Weiss (2002) shows that affect is positively related to creative problem solving and creativity, helping and cooperation, performance, and reduced withdrawal behaviors. Moreover, Gagné and Deci (2005) underline that when people are intrinsically motivated at work, and engage in activities (many of which are technology supported) because they find the activity itself interesting, stimulating and fun, they persist more in tasks, are able to sustain behavioral changes and improve their performance, have more positive attitudes and higher organizational commitment, and have a higher well-being. These outcomes are likely to become essential for future organizations as, in an era characterized by complexity and unpredictability, they will depend more and more on their ability to adapt and innovate (Griffin, Neal, & Parker, 2007). It becomes apparent that organizations have plenty of reasons for which they should strive to understand how positive emotions and intrinsic motivation can be fostered by the technology they use.

Third, intrinsic motivation is supported by the satisfaction of basic human needs: competence, autonomy, relatedness, stimulation and so on (Gagné & Deci, 2005). We can't expect people to suddenly have different needs regarding interaction with (sometimes

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the same or similar) technology when they go to work (Hassenzahl, Diefenbach, & Göritz, 2010). So if a pleasurable, enjoyable and fun interaction is important for the way we use personal interactive technology, then it will be important also for the way we use interactive technology in organizations. Therefore, it is undeniable that organizations should strive not only to buy, adopt or create the most advanced technology, but also to understand how they can facilitate the type of interaction experience that will lead to the best outcomes. This understanding could be supported by existing research on user experience (UX) focusing on the exact type of interaction we have described thus far. However, this research is poorly applied to organizational settings (Bargas-Avila & Hornbæk, 2011). Therefore, in this article we will provide o short overview of the existing research and will focus on possible extensions of current UX models in order to facilitate organizational applications.

BACKGROUND

UX has received an increased interest from both academia and practice, as it became more and more obvious that traditional frameworks focused heavily on usability and utility were becoming less adequate to address the more complex forms of interaction (Law, Roto, Hassenzahl, Vermeeren, & Kort, 2009; Hassenzahl, 2003, 2004).

The concept of UX has been assigned a wide variety of meanings and has been used in several ways, sometimes even as a synonym to interaction, usability or user-centered design (Bargas-Avila & Hornbaek, 2011). Mainly, it is used to denote a new research paradigm that moves beyond simplistic considerations of interaction based solely on functionality (Hassenzahl, 2003, 2004). Rather, UX focuses on the importance of non-instrumental needs and experiences, attempting to paint a more holistic and complex view of people's interaction with technology (Hassenzahl, 2003).

UX in itself refers primarily to the subjective and dynamic evaluations that arise from our interaction with technology, in a form of permanent reflection on events. These evaluations are facilitated by the way in which interaction contributes to the fulfillment of basic human needs (for autonomy, competency, stimulation, relatedness) while also helping us to fulfill task related goals (Hassenzahl, 2008). As such, UX research is interested in investigating the way user experience develops and evolves during technology use and the way it is shaped by the interactions between interactive products' characteristics, users' characteristics and context (Bargas-Avila & Hornbæk, 2011).

Hassenzahl (2003, 2004) developed one of the most widely used UX models. According to this model, people perceive technology characteristics through the lens of their own needs and characteristics. This gives rise to perceptions of both instrumental (pragmatic) and non-instrumental (hedonic) technology qualities. These two kinds of perceptions influence psychological reactions, subjective feelings or motor expressions and altogether affect the user's overall appraisal of the system. The appraisal has an impact on behaviors, decisions and future actions. The core assumption of these models is that hedonic quality essentially drives experience, the instrumental quality acting only as a "hygiene factor" (Hassenzahl et al., 2010).

Research largely supports the relationships described above. For example, Hassenzahl (2004) showed that overall appraisal of a product is influenced by both instrumental and non-instrumental qualities, but aesthetic evaluation was related only to hedonic quality and was stable over time. Furthermore, the context of use influenced the strength of these relationships. In the context of a specific task, instrumental attributes were the most important, but when users were just exploring technology, hedonic attributes took precedence (Hassenzahl, Kekez, & Burmester, 2002).

Further investigations of relationships posited by this model showed that when interaction with technology fulfills basic needs, this gives rise mostly to positive activated emotions (Hassenzahl, 2008). Moreover, need fulfillment had a direct influence on perceptions of non-instrumental quality and also indirect effects on both instrumental and non-instrumental quality, through positive affect. This indicates that positive affect spills over to the underlying processes that account for the way we perceive interactive technology (Hassenzahl et al., 2010).

Addressing the dynamic nature of UX, Karapanos, Zimmerman, Forlizzi and Martens (2010) investigated the way UX develops in time, from initial purchase. The results show that while initial experience is supported mainly by hedonic quality, prolonged use is more strongly related to product meaningfulness in users' life.